

CLAIMS

1. Process of producing gasoline with a low sulphur content from a feedstock containing sulphur, comprising at least the following steps:

- 5 a1) at least one selective hydrogenation of the diolefins and acetylenic compounds contained in the feedstock,
- b) at least one separation of the effluent obtained at the end of step a1 into at least three fractions, a light fraction from which virtually all of the sulphur has been removed and containing the lightest olefins, a heavy fraction in which the greater part of the sulphur
- 10 compounds initially contained in the initial gasoline is concentrated and at least one intermediate fraction having a relatively low content of olefins and aromatics,
- c1) at least one treatment of the heavy gasoline separated at step b on a catalyst enabling the unsaturated sulphur compounds to be at least partially decomposed or hydrogenated,
- d) at least one step to remove the sulphur and nitrogen from at least one intermediate
- 15 fraction, followed by catalytic reforming.

2. Process as claimed in claim 1, additionally comprising at least one step a2 prior to step b with a view to increasing the molecular weight of the light sulphur products present in the feedstock and/or the effluent from step a1.

- 20 3. Process as claimed in one of claims 1 or 2 additionally comprising a step c2 in which the effluent from step c1 is treated on a catalyst enabling the sulphur compounds to be decomposed.

4. Process as claimed in claim 3, in which the catalyst from step c2 additionally allows

25 hydrogenation of the olefins to be limited to less than 20% by volume.

5. Process as claimed in any one of claims 1 to 4, additionally comprising a step e of mixing at least two fractions, at least one of which was desulphurized at step c1 and optionally c2 and/or step d.

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6. Process as claimed in anyone of claims 1 to 5 in which a part of at least one intermediate fraction obtained from step b is mixed with the heavy fraction from step b prior to step c1.
7. Process as claimed in any one of claims 1 to 5 in which a part of at least one intermediate
5 fraction obtained at step b is mixed with the effluent from step c1.
8. Process as claimed in anyone of claims 1 to 7 in which step d during which the sulphur and nitrogen are removed is accompanied by full hydrogenation of the olefins.
- 10 9. Process as claimed in any one of claims 1 to 8 in which the feedstock is a gasoline cut from a catalytic cracking unit.
- 15 10. Process as claimed in any one of claims 1 to 9 in which step b comprises separation of the effluent obtained from step a1 into four fractions: a light fraction, a heavy fraction and two intermediate fractions, and in which one of the intermediate fractions is treated at step d and the other is mixed with the heavy fraction separated at step b before being treated at step c1 and/or step c2.